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U.S. Fish & Wildlife Service

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Hatchery System Alignment

National Fish Hatchery System Alignment, Appropriateness, and Adequacy (3As) Evaluation

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Executive Summary

The U.S. Fish and Wildlife Service is in the beginning stages of developing a strategic plan for the National Fish Hatchery System (NFHS) that will prepare the System to better fulfill its responsibilities for conserving aquatic resources. The Alignment, Appropriateness, and Adequacy (3As) Evaluation is one of the cornerstones that will anchor that strategic plan. Other nationwide efforts that the Service will draw from are the Hatchery Project Report being prepared by the Sport Fishing and Boating Partnership Council, the 1999 - 2000 audit conducted by the General Accounting Office, and the products of eight internal Fish and Wildlife Service work groups. In addition, there are several regional developments that will help the overall strategic planning process, including the recent biological opinions of the National Marine Fisheries Service in the Pacific Northwest, the Artificial Production Review prepared by the Northwest Power Planning Council, and the work of the Hatchery Scientific Review Group initiated by the Senate Appropriations Committee. Input from other stakeholders will also be integrated into the strategic plan.

The NFHS undertook the extensive 3As self-evaluation of its production programs in March 1998. The purpose of the evaluation was to determine (1) the extent to which production programs carried out by the NFHS were ALIGNED with the six Fisheries Program Priorities that were established in 1997, (2) whether the production programs were APPROPRIATE to meet fishery management goals and objectives, and (3) whether the programs were ADEQUATELY supported by scientific planning, monitoring, and evaluation, as well as staffing and funding, to conduct the program responsibly. The evaluation also included analyses of the overall numbers and species of fish produced. Ultimately, the results of the evaluation will help the NFHS focus the optimum proportion of its resources on priority programs.

During the 1997-1998 3As evaluation period, the NFHS produced approximately 183 million fish weighing 6 million pounds and 150 million eggs. In FY 1998 only, the NFHS produced approximately 164 million fish weighing 5.7 million pounds and 122 million eggs. Nationwide, these fish and eggs produced in FY 1998 represented approximately 5% of all fish, 2% of all fish weight, and 18% of all eggs produced for conservation and restoration in the United States[1]. Six species of salmon and trout accounted for 90% (by weight) of the Service's production.

Production was distributed among 779 different fish production programs, of which 87% of the programs and 96% of the fish weight were directly aligned with the Fisheries Priorities[2]. Mitigation of Federal water development projects was the priority with which the greatest number of production programs were directly aligned (37%). Of the 101 non-aligned programs, 41 were conservation exchanges, 44 were reimbursable activities, and 16 represented fish provided for National Fishing Week, university research, and stocking of non-Service Federal lands. Many conservation exchanges and reimbursable activities ultimately supported the six Fisheries Priorities and were critical to the Service's partnerships with Tribes, States, conservation organizations, universities and others; however, some of these production programs may be more appropriately provided by States, Tribes, or other agencies. At present, the Service's Regional Directors are reviewing each of the 101 non-aligned programs to determine, in conjunction with our partners, whether or not each should be continued. Preliminary indications are that approximately 10% of the programs have been discontinued since 1997-1998 and that ultimately 40% may be discontinued by the Service and shifted to States, Tribes, or other agencies after consultation with the Service's partners.

Most of the fish produced by the NFHS support mitigation and restoration of native stocks, and therefore are available to recreational and commercial fishermen. Others are helping to prevent endangered and threatened species from becoming extinct. These findings were verified by the General Accounting Office in its 1999-2000 audit of the NFHS. All fish and fish eggs produced within the NFHS contribute to the Service's mission, which is "working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

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[1] Source: *1998 Census of Aquaculture*, USDA, 1 Feb 2000.

[2] An additional 117 broodstock programs and internal transfers were excluded from this analysis because of difficulty in tracking fish and eggs to their ultimate use, mostly by states and other partners (see page 3 and Appendix D).

Preface

Table 1.
Definitions of 3As Evaluation Components

Alignment: A production program is aligned when it contributes to one or more of the Service's Fisheries Program Priorities.

Appropriateness: A production program is appropriate when it is preceded by analyses that indicate the program has the potential to achieve specific goals and objectives set forth in fishery management plans, species recovery plans, or cooperative agreements.

Adequacy: A production program is supported adequately when it is planned, implemented, and evaluated effectively and efficiently.

Table 2.
US Fish and Wildlife Service Fisheries Priorities as determined in 1997

1. Recover listed and candidate aquatic species (native species only)
2. Restore interjurisdictional fisheries and aquatic ecosystems (native species only)
3. Manage interjurisdictional fisheries (native species only)
4. Fulfill mitigation obligations (native and non-native species)
5. Restore depleted aquatic populations to preclude listing (native species only)
6. Provide fish and wildlife management assistance to Tribes and on Fish and Wildlife Service lands (native and non-native species).

This document represents the first of two reports that will describe the results of the NFHS's Alignment, Appropriateness, and Adequacy (3As) Evaluation. The main thrust of this evaluation was to determine how well NFHS production programs aligned with the Service's Fisheries Priorities, and if preparations and support for these programs were sufficient (Table 1). Due to the volume of information contained within the 3As database, the results of the Alignment portion of the evaluation will be discussed separately from those of Appropriateness and Adequacy.

Alignment, for the purposes of the 3As Evaluation and this report, specifically refers to the degree to which all NFHS production programs during the period 1997-1998 were directly tied to the Service's six Fisheries Priorities (Table 2). The Fisheries Program priorities with which alignment was evaluated were established in 1997 and have remained constant through 2000. However, as resource needs and the capabilities of the Service's partners change in the future, so too may the Fisheries Program priorities.

A production program was defined as a distinct activity undertaken by the Service to meet a specific fishery management objective. In other words, fish, fish eggs, or other aquatic life forms of a specific species and specific strain stocked from one hatchery into a specific body of water for a specific management purpose represented one distinct production program. The production program was selected as the management unit for the 3As evaluation because it allowed tracking of a discrete group of fish that was being propagated and distributed for a specific purpose, and it provided a common denominator within which all fish are treated similarly.

Production programs were further characterized by four modifiers: (1) conservation exchange, (2) reimbursable activity, (3) court order, and (4) legislative mandate. For the most part, these modifiers were assigned to production programs that were not aligned with the six Priorities, but for which there was compelling justification to continue them. A conservation exchange was defined as hatchery fish or eggs provided to another agency, usually a State, in exchange for similar products from that agency. In most cases exchanges involved species more efficiently produced by one agency than another. For example, Gavins Point NFH, SD provided walleye fry to the States of Nebraska, North Dakota, and South Dakota in exchange for assistance with production of endangered pallid sturgeon fingerlings. This represented the most efficient use of the respective agencies' facilities, and saved the NFHS approximately $40,000/year in operational and maintenance costs. Reimbursable activities were defined as production programs for which full or partial monetary compensation was provided by another agency. One example is the use of excess capacity at Wolf Creek NFH, KY to produce rainbow trout for the Kentucky Department of Fish and Wildlife Resources (DFWR). Court orders and legislative mandate had the potential to describe non-aligned programs, but in reality they were found to apply only to aligned programs.

All 66 National Fish Hatcheries (NFHs) and their accompanying substations that had production programs during 1997-1998 were evaluated. Data were mixed between years 1997 and 1998 because some NFHs did not have complete 1998 production data during the time of the original data call. For these NFHs the 1997 data were the most complete. While it would have been preferable to deal with only a single year's production, mixing two years' data did not significantly affect the outcome of the evaluation since many production programs are continued from one year to the next. Furthermore, this combination of data allowed the evaluation process to proceed in a timely manner.

During the course of the Alignment analysis, the General Accounting Office conducted an audit of the NFHS. The relationship between the Alignment analysis and GAO's audit is discussed after the "RESULTS OF ANALYSES" section (page 4) of this report.

Background

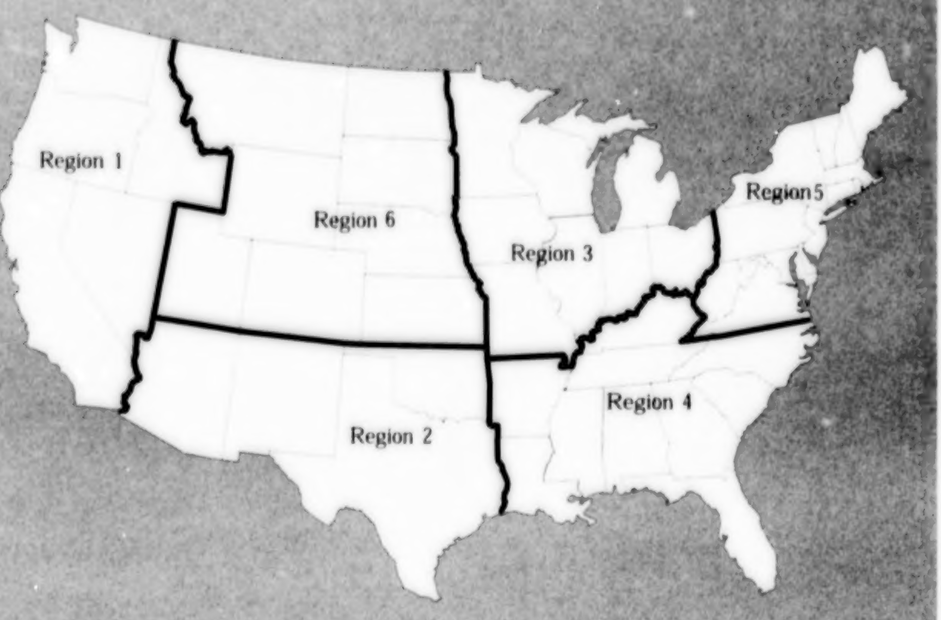
The original impetus for the 3As Evaluation came from the Service's 1994 Control Review Report on the NFHS. This report recommended that the Service develop standard criteria and guidelines for evaluating hatchery production programs to improve oversight of the NFHS. Over the next few years this concept was expanded to include many related aspects dealing with production program alignment with Service Fisheries Priorities, appropriateness of the production as a management tool in a particular situation, and adequacy of scientific planning, monitoring, and evaluation, as well as staffing and funding to conduct the program responsibly.

This broader concept of a NFHS self-examination was translated into a series of survey questions by the Division of National Fish Hatcheries during 1997 and the early part of 1998. Beginning in March 1998, the final draft of the survey (now called the 3As Survey) was sent to the Service's six Regions that support NFHs and distributed to individual field stations (Figure 1 and Appendices A and B). Over the next eight months, the surveys were completed, sent back to the Division of National Fish Hatcheries, entered into a database, and the data analyzed.

Preliminary analyses revealed a disparity in the way that certain definitions and questions were interpreted and answered. It then became clear that additional training, guidance, and time would be required to ensure uniformity and consistency among respondents. Consequently, in December 1998, the Directorate decided that each Region needed to resubmit amended data following a visit by representatives from the Division of National Fish Hatcheries. The purpose of this visit was to discuss, face to face, the inconsistencies in the data, and methods for rectifying the situation.

All Regional visits were completed and the amended data resubmitted by December 1999. Further analyses were then undertaken, leading to preparation of this report regarding alignment. A separate report regarding the appropriateness and adequacy of NFHS programs is scheduled for 2001. Further analysis of the alignment data will be continued. For example, Appendix D includes 117 formal broodstock programs and internal transfers of fish and eggs. Difficulty in tracking alignment of these programs has indicated a need for the separation and further analysis of these programs.

Figure 1. U.S. Fish and Wildlife Service Regions with NFHs.



Results of Analyses

Summary of Fish Production

Production Programs and Species

Within the NFHS, 779 individual production programs were identified (Table 3). Region 6 had the largest number of production programs (274 or 35%), while Region 5 had the fewest (34 or 4%). These results are directly related to the fact that Region 6 produced the highest number of species (22), while Region 5 concentrated primarily on a few species like Atlantic salmon, lake trout, and American shad (Figure 2).

Figure 2.
Number of Species Propagated.

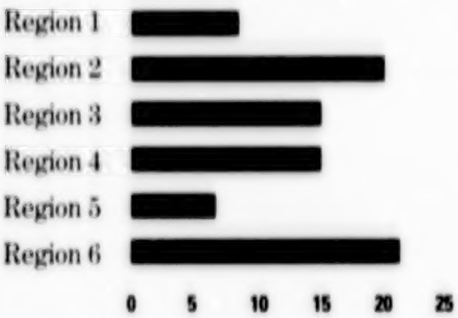


Table 3.
Distribution of Programs by Region.

Region	Programs	% Total
1	52	7
2	142	18
3	100	13
4	177	23
5	34	4
6	274	35
NFHS	779	100

Fish Number, Weight, Species, and Eggs

During the 1997-1998 3As evaluation period, the NFHS produced approximately 183 million fish weighing 6 million pounds and 150 million eggs (Table 4). In FY 1998 only, the NFHS produced approximately 164 million fish weighing 5.7 million pounds and 122 million eggs. Nationwide, these fish and eggs produced in FY 1998 represented approximately 5% of all fish, 2% of all fish weight, and 18% of all eggs produced for conservation and restoration in the United States. In terms of fish weight, Region 1 produced the greatest amount (49%), while Region 5 produced the least (3%).

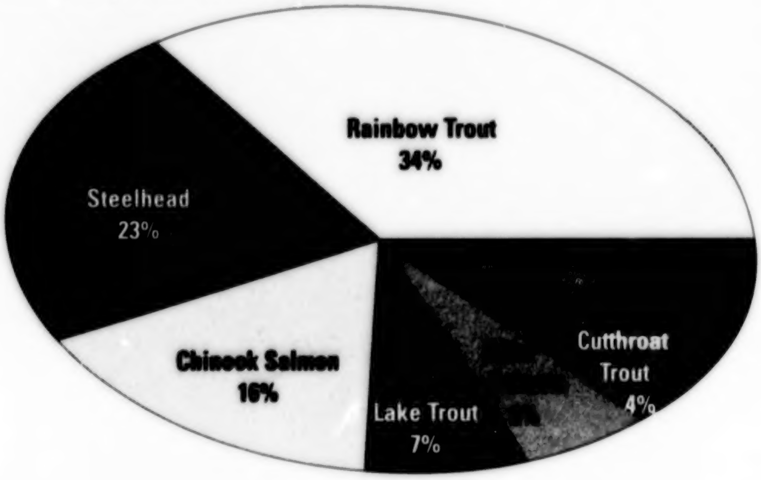
Region 1's NFHs had a relatively low number of individual production programs (52 or 7%), but the highest number and weight of fish produced because their programs were geared toward producing large numbers of fish from a few species that could easily be stocked into adjacent water bodies.

Salmonid (salmon and trout) production (by weight) predominated within the NFHS (Figure 3). The top six species produced were salmonids, and they represented 90% (by weight) of total production.

Table 4.
Distribution of Fish, by Number and Weight, and Eggs, by Number.

	Fish Number	Pounds of Fish	% of Total Pounds	Number of Eggs
Region 1	80,882,129	2,845,087	49	3,411,299
Region 2	5,453,459	509,190	9	1,022,441
Region 3	16,664,865	424,943	7	45,273,415
Region 4	25,986,446	1,311,005	23	9,650,486
Region 5	18,571,836	198,732	3	22,734,084
Region 6	35,313,402	529,431	9	67,676,326
NFHS	182,872,137	5,818,388	100	149,768,051

Figure 3.
High Production Species (by Weight).



The remaining 10% of total production was made up of a variety of other important fish species, many of which are imperiled or listed under the Federal Endangered Species Act (Table 5). While produced in lesser quantities, these fish were both valuable and expensive components of the NFHS's overall production.

The domination by salmonids was also evident when production (by weight) was viewed from a Regional perspective (Table 6). Rainbow trout was the top production species for three of the six Regions. Of the top three production species for each Region, only two non-salmonid species, channel catfish in Region 2 and striped bass in Region 4, were represented.

Table 5.
Number, Weight, and Status of Some Other Important Fish Species Produced at NFHs.

Species	Number	Pounds of Fish	Status
American Shad	5,743,200	*	Depleted
Apache Trout	81,791	22,455	Threatened
Atlantic Salmon	13,301,888	124,000	Imperiled
Land-locked Atlantic Salmon	219,619	15,642	Depleted
Bonytail Chub	84,601	1,521	Endangered
Chihuahua Chub	515	66	Threatened
Colorado Pikeminnow	20,577	5	Endangered
Desert Pupfish	35	1	Endangered
Gila Trout	2,368	32	Endangered
Leon Springs Pupfish	634	3	Endangered
Lake Sturgeon	7,300	225	Imperiled
Paddlefish	587,044	12,124	Imperiled
Pallid Sturgeon	21	2	Endangered
Razorback Sucker	45,317	2,988	Endangered
Robust Redhorse	59,437	1,706	Imperiled
Shovelnose Sturgeon	176,085	256	Imperiled
Striped Bass	10,767,619	52,725	Depleted
Virgin River Chub	744	59	Endangered
Woundfin	21,721	61	Endangered
Yaqui Catfish	4,330	346	Threatened

* Fry, no weight measured due to stress factor.

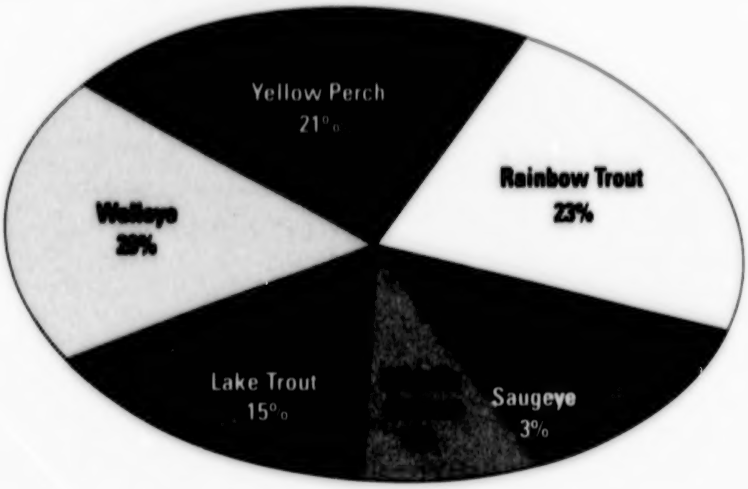
Table 6.
Regional Fish Production (by Weight).

	#1 Species	#2 Species	#3 Species
Region 1	Steelhead	Chinook Salmon	Coho Salmon
Region 2	Rainbow Trout	Channel Catfish	Apache Trout
Region 3	Lake Trout	Rainbow Trout	Brook Trout
Region 4	Rainbow Trout	Brown Trout	Striped Bass
Region 5	Atlantic Salmon	Lake Trout	LL* Atlantic Salmon
Region 6	Rainbow Trout	Cutthroat Trout	Lake Trout

* LL: Land-Locked; primarily for Lake Champlain.

Egg production was dominated by salmonids; however, eggs from other species such as yellow perch and walleye were also produced in large numbers (Figure 4). Production of salmonid eggs came primarily from the NFHS's broodstock hatcheries. Operation of broodstock hatcheries by the NFHS ensures that high-quality, disease-free, and genetically-appropriate eggs are available to the NFHS and many State fish hatcheries. Consolidation of egg production at a few NFHs optimizes economies of scale, and provides Federal ownership of a program that individual States are reluctant to undertake.

Figure 4
High Egg Production Species (by Number).



Summary of Alignment with Service Fisheries Priorities

Field stations were required to select the Fisheries Priority that best described the primary purpose of the production program. This was necessary to calculate percentages and to avoid counting the same production programs multiple times. However, this requirement obscured the fact that many production programs supported two or more Fisheries Priorities. This point should be kept in mind while reading the following sections.

Production Programs by Region

Overall, 87% of the NFHS's production programs and 96% of the weight produced during 1997-1998 directly aligned with the Service's six Fisheries Priorities (Table 7). On a Regional basis, the number of production programs in alignment ranged from 100% in Region 1 to 82% in Regions 2 & 6. Alignment of weight produced ranged from 100% for Region 1 to 84% for Region 6.

Table 7.
Program Alignment by Region.

	By Programs	By Weight
Region 1	100%	100%
Region 2	82%	92%
Region 3	93%	>99%
Region 4	91%	92%
Region 5	88%	99%
Region 6	82%	84%
NFHS	**87%***	**96%***

*Based on total NFHS programs and total weight, not the average of Regional percentages.

Production Programs by Priority

(1) Mitigation of Federal water projects was the priority with which most NFHS production programs were aligned (37% of programs or 52% of weight) (Figures 5 and 6). The mitigation priority was followed in order by: (2) fish and wildlife management assistance to Tribes (15% of programs or 6% of weight), (3) restoration of interjurisdictional species (12% of programs or 17% of weight), (4) recovery of listed species (8% of programs or 7% of weight), (5) restoration of depleted species (7% of programs or 12% of weight), (6) fish and wildlife management assistance on Service lands (7% of programs or 1% of weight), and (7) management of inter-jurisdictional fish (1% of programs or 1% of weight). Non-aligned programs accounted for 13% of programs or 4% of weight.

The distribution of production programs, either by weight or by number, was not indicative of how funds spent by the NFHS were distributed across the six Fisheries Priorities. Production programs aimed at recovery and restoration typically are much more expensive than those aimed at the other priorities. Recovery and restoration programs require greater expenditures for planning, production, monitoring, and evaluation.

Figure 5.
Distribution of Production Programs.

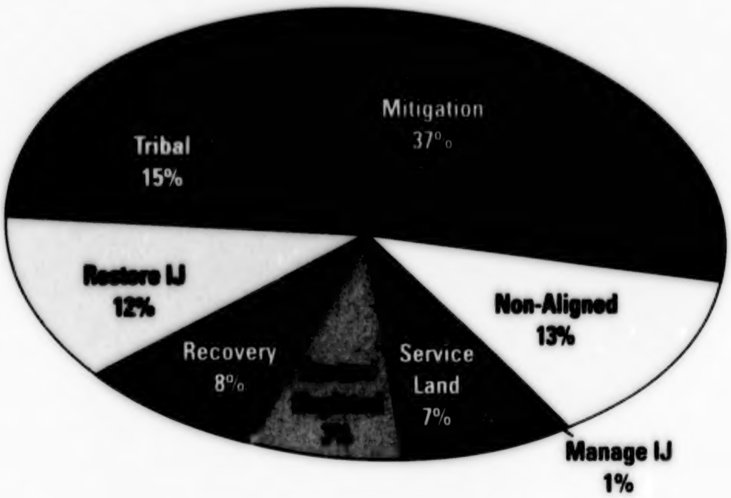
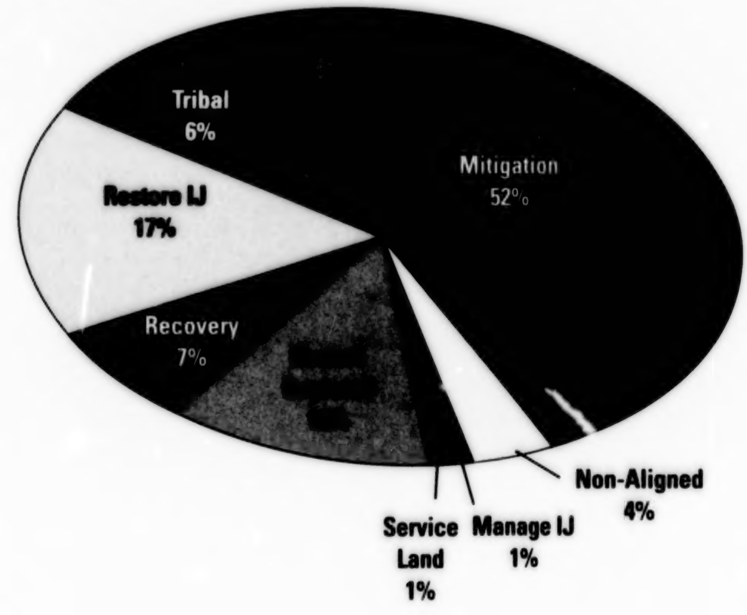
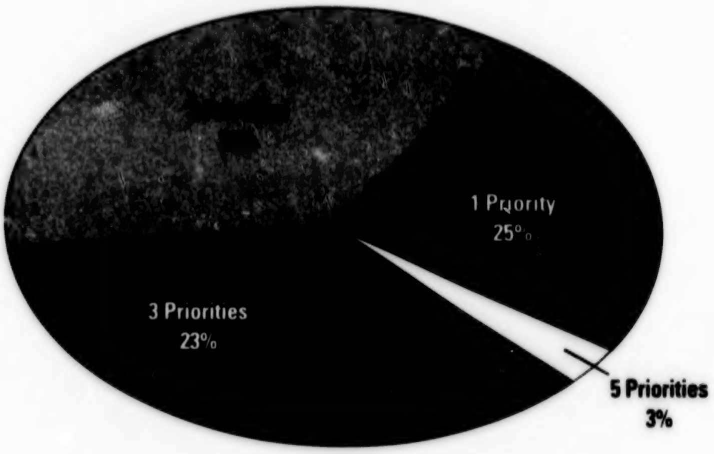


Figure 6.
Distribution of Production Weight.



While each production program of a NFH was classified as either aligned or not aligned with a single Fisheries Priority, the majority of all hatcheries (75%) conducted an array of programs that were aligned with different Priorities (Figure 7). In other words, the majority of all NFHs could not be classified solely as "mitigation," "restoration," or "recovery" hatcheries, because they also conducted production programs aligned with other Priorities.

Figure 7
Production Program Diversity at NFHs.



Non-Aligned Programs

Programs that were not directly aligned with the six Fisheries Priorities accounted for 13% of the total production programs and 4% of the total fish weight produced (Figures 5 & 6). The high percentage of production programs in relation to the low percentage of fish weight is an indication that non-aligned programs are conducted with small numbers of fish or small fish that do not require a lot of effort on the part of the Service.

Of the 101 programs not directly aligned with the six Fisheries Priorities, 41 were classified as conservation exchanges, 44 were classified as reimbursable activities, and 16 were not further classified by any modifier (Table 8 and Appendix C). Non-aligned programs were distributed rather lightly across the entire NFHS, but more occurred in Regions 2 and 6 than elsewhere. The 16 non-classified, non-aligned programs represented fish produced primarily for university research, National Fishing Week events, and stocking of non-Service Federal lands.

Table 8.
Distribution of Non-Aligned Programs

	Conservation Exchange	Reimbursable Activity	Neither	Total
Region 1	0	0	0	0
Region 2	16	3	6	25
Region 3	7	0	0	7
Region 4	2	13	1	16
Region 5	0	0	4	4
Region 6	16	28	5	49
NFHS	**41**	**44**	**16**	**101**

Many of these conservation exchanges and reimbursed activities are critical to the success of the Service's partnerships with States, Tribes, conservation organizations, universities and others that promote and encourage wise conservation of aquatic resources and their supporting ecosystems. These programs included reimbursement from the Colorado Department of Wildlife for production of whirling disease-free rainbow trout at Hotchkiss NFH, CO, the exchange of walleye for pallid sturgeon, and the reimbursed production of rainbow trout for Kentucky DFWR (examples cited previously.) Many supported the six Fisheries Priorities indirectly. Consequently, there is compelling justification to continue some of these programs.

On the other hand, there are some conservation exchanges and reimbursable activities that may be more appropriately provided by agencies other than the Fish and Wildlife Service. As the NFHS and the Federal Aid in Sportfish Restoration Program have evolved over the years, more and more NFHS production programs, such as stocking state waters, have been shifted to State partners. Some of the conservation exchanges and reimbursable activities in which NFHs were engaged during 1997-1998 fall into this category of programs that could be shifted to States. That is not to say that they were inappropriate fisheries management activities, but rather that they should be conducted by someone other than the Service. The question of how to deal with these programs was referred to the workgroups described later in this report. Preliminary investigations by the 3As Workgroup have revealed that approximately 10% of these programs have been discontinued since the original data call. At present, the Service's Regional Directors are examining each of the remaining non-aligned programs to decide, in conjunction with our partners, whether or not each program should be continued. The workgroup estimates that as many as 40% of the non-aligned programs may by discontinued by the Service and shifted to other fisheries management partners after consultation with the Service's partners.

Service-Funded Versus Reimbursed Production Programs

Evaluators also looked at the distribution of production programs supported by funds appropriated to the Service and those supported by reimbursable funds. Based on this specific analysis, 91% of the Service-funded production programs were aligned with the Fisheries Priorities and 63% of the reimbursed programs were aligned (Table 9). The relatively low percentage of alignment for reimbursed programs was not unexpected since the majority of these programs produced fish primarily to meet demands for recreation from U.S. military installations (under authority of the Sikes Act) and State fish and wildlife departments.

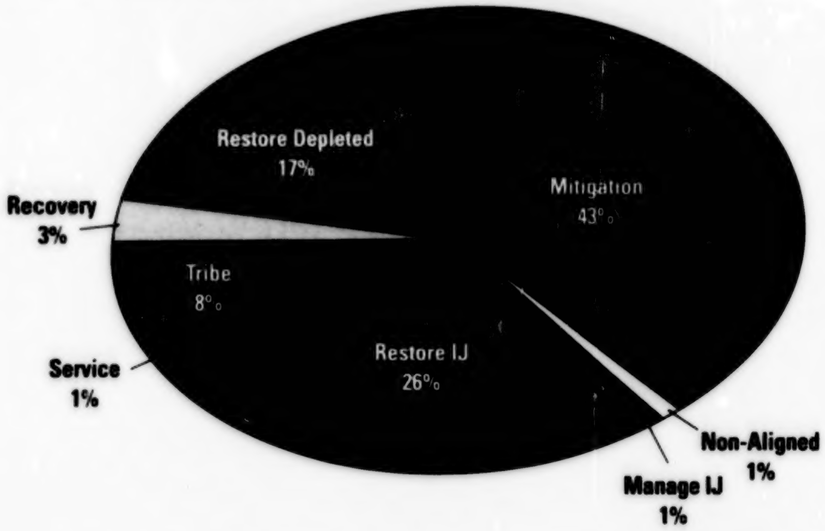
On a Regional basis, alignment of programs supported by Service funds ranged from 100% for Region 1 to 84% for Region 2 (Table 9). With regard to reimbursed programs, alignment ranged from 100% for Region 1 to 0% for Region 4. Eleven of the 13 non-aligned reimbursable programs in Region 4 involved fish produced for the Kentucky DFWR. Reimbursable programs are conducted when they do not interfere with aligned programs because they build relationships with partners and help defray the cost of operations.

Table 9.
Number of Aligned Programs Alignment by Region and Funding Source.

	Service-Funded		Reimbursed	
	Programs	Aligned	Programs	Aligned
Region 1	34	100%	18	100%
Region 2	137	84%	5	40%
Region 3	62	89%	38	100%
Region 4	164	98%	38	100%
Region 5	34	88%	0	NA
Region 6	230	91%	44	36%
NFHS	**661**	**91%**	**118**	**63%**

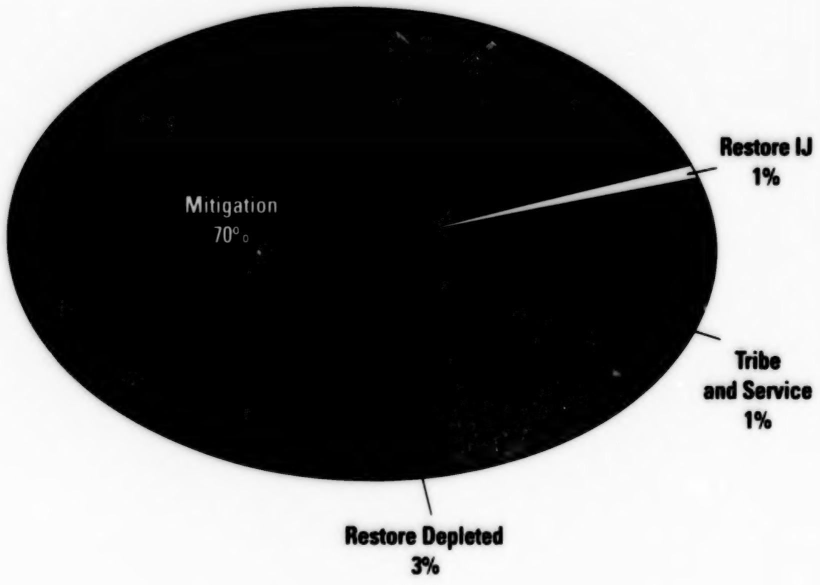
For Service-funded programs, mitigation represented 43% of the total weight (Figure 8), restoration of interjurisdictional species represented 26%, restoration of depleted species represented 17%, stocking on Tribal lands represented 8%, recovery activities represented 3%, stocking on Service lands represented 1%, and management of interjurisdictional species represented 1%. Non-aligned programs represented 1% of the total weight.

Figure 8
Distribution of Service-Funded Programs (by Weight)



A somewhat different distribution was seen for the reimbursed programs. Mitigation represented 70% of the total weight (Figure 9), recovery represented 15%, restoration of depleted species represented 3%, restoration of interjurisdictional species represented 1%, stocking on Tribal and Service lands represented 1% of the total weight, and management of interjurisdictional species represented none of the weight. The restoration and recovery activities were almost exclusively funded by the Bureau of Reclamation and by the National Marine Fisheries Service under the Mitchell Act. Non-aligned programs accounted for 10% by weight. As stated previously, the higher percentage of non-aligned, reimbursed programs was directly related to the fact that many of these programs involved production of fish primarily to meet demands for recreation from U.S. military installations (under authority of the Sikes Act) and State fish and wildlife departments.

Figure 9
Distribution of Reimbursed Programs (by Weight).



Funding Considerations and Alignment

The preceding analyses accurately depict how the NFHS's Service-appropriated and reimbursed production programs were aligned with the Service's Fisheries Priorities; however, these analyses do not address the amount of funding. It should be noted that neither the number of programs aligned with a particular Priority, nor the weight of fish produced for that Priority, equates to the amount of money allocated to that Priority. Because restoration and recovery programs require propagating fewer fish under more rigorous scientific controls, costs are much greater per fish or per pound. Conversely, fish produced for mitigation purposes generally have a long production history, and therefore, many of their production limitations have been overcome or minimized. These incongruities were recognized years ago, and the Service has taken steps to more adequately fund restoration and recovery activities. Between 1994 and 1997, the Service redirected $5.6 million to restoration and recovery programs in coordination with the Appropriations Committees and other fishery stakeholders. Redirection has its limits though, because a significant portion of the Service's Fishery Budget is appropriated for mitigation production and because of clear obligations established by Federal statutes, treaties, and court decisions. The Service is working with its partners to determine if there are alternative funding sources, such as additional reimbursement programs, with which to fund, in whole or part, the 295 mitigation programs identified in the 3As evaluation.

Alignment and the General Accounting Office Audit

In response to a request by the Honorable George Miller, Ranking Minority Member of the House Resources Committee, GAO undertook an audit of the NFHS in March 1999. The audit was conducted in two phases:

- Phase I focused on funding for the NFHS, on the purposes for which fish from the NFHS were produced and distributed, and on issues related to fish health and disease at NFH's. GAO's report for Phase I, *National Fish Hatcheries: Classification of the Distribution of Fish and Fish Eggs Needs Refinement* (GAO/RCED-00-10) was completed in October 1999.
- Phase II focused on statutory authorities for the NFHS. GAO's report for Phase II, *National Fish Hatcheries: Authority Needed to Better Align Operations With Priorities* (GAO/RCED-00-151) was completed in June 2000.

Copies of the GAO reports are available from their web site: http://www.gao.gov or by calling 202/512 6000.

The segment of the GAO audit that relates most closely to the 3As Alignment report is the Phase I segment that addresses the purposes for which fish from the NFHS were produced and distributed. In summary, GAO found that 40 percent of the fish by number and 20 percent of the fish by weight were used to assist in restoration and recovery efforts, not 80 percent of the fish and 56 percent of the pounds as identified by the Service; that the Service's classification of distribution did not provide a clear picture of the unique role that Federal hatcheries are supposed to play and that the Service should refine its fish and fish egg classification system; and that the Service has assisted in the production of fish for commercial and recreational purposes to a greater extent than the Service indicated.

While the Service agrees with most of the GAO findings, there are three complexities that prevent direct comparison of the GAO audit with the 3As Alignment analysis:

- Although the data used for the GAO analysis were the same as those used for the 3As Alignment analysis, the systems under which the data were classified were not the same. The Service's Washington Office recognized in early 1998 that the fish and egg classification system needed to be revised and had begun to do so. The data used by GAO had been classified according to the draft classification system that was being considered. The data used for the 3As Alignment analysis had been classified according to the classification system actually in use at the time. While the results of GAO's analysis differ substantially from results obtained using the draft classification system (see GAO's Phase I report), the differences between GAO's analysis and results obtained through the 3As Alignment analysis are much less.

  The Service and the Department of the Interior agreed with GAO that the fish and egg classification system needed to be revised. The new classification system implemented in FY 2001 is much closer to GAO's analysis than the earlier draft classification system.

- In Phase I of the audit, GAO analyzed the number and weight of fish distributed but not the number of production programs. GAO found that 40 percent of the fish by number and 20 percent of the fish by weight were used to assist in restoration and recovery efforts.

  The 3As Alignment analysis focused on production programs and weight of fish produced as opposed to the number of fish produced because production programs are distinct management units tied to fishery management objectives, and weight of fish is more closely related to the cost and effort involved in those production programs than is the number of fish produced. The 3As Alignment analysis found that 27 percent of the production programs and 36 percent of the weight of fish were used to assist in restoration and recovery efforts. These results are much more in line with GAO's findings than what was obtained using the draft classification system under consideration at the time. The Service believes that the classification system implemented in FY 2001 will provide a means to answer questions about the Service's fish and fish egg distribution clearly and accurately.

- In its Phase I Report, GAO states, "most public and private hatcheries throughout the United States focus on producing fish for the primary purposes of commercial use and recreational fishing, but the 67[3] hatcheries in the National Fish Hatchery System are supposed to play a different role." Some may infer from this statement that programs that contribute to recreational or commercial fishing were not being conducted for the purposes intended by Congress. This would make the results of the Alignment analysis quite different. However, GAO did not draw that conclusion. In fact, in Phase II of its audit, GAO found that activities conducted by the NFHS fell within the broad authorities and direction of their authorizing legislation. Nonetheless, both the Service and the Department of the Interior felt compelled to address this potential misperception in their response to the Phase I report.

  In its response to GAO, the Department of the Interior's Assistant Secretary for Fish and Wildlife and Parks stated that "... we would like to clarify a point that is implied throughout the GAO report that Service hatchery programs that benefit recreational and commercial anglers do not fill the 'unique' role of Federal hatcheries. While other public and private hatcheries produce fish that are sold commercially or that are stocked for the primary purpose of increasing opportunities for recreational anglers, the focus of Service hatchery programs is on maintaining healthy fish populations.... The benefits of healthy fish populations accrue to many segments of the American public: conservationists, recreational and commercial fishermen, Native Americans, and, through healthy ecosystems, the general public. This is consistent with the Service's mission, which is 'working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.'

  Several statements in the GAO report can be construed to mean that because some Service hatchery programs ultimately benefit recreational or commercial anglers, as do some State programs, the Service programs do not fill the role that should be played by Federal hatcheries. We believe that Service hatchery programs do fulfill the Federal hatchery role, and in so doing, it follows logically that there are natural positive consequences for recreational or commercial anglers. It is self-evident that in pursuing our objective of maintaining healthy fish populations, the Service's actions benefit all who depend on these populations, including anglers. Far from discrediting our Federal role, these benefits to anglers and others provide measurable evidence of the effectiveness of our actions in maintaining healthy fish populations."

GAO findings in addition to those related to alignment considerations are presented in the *GAO Findings and Recommendations* Section later in this report.

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[3] In the Phase I Report, GAO reported that there were 67 hatcheries. However, in the Phase II Report, GAO reports that there are 66 hatcheries because Berkshire National Fish Hatchery in Massachusetts is currently in caretaker status and is being operated as an educational facility.

Foundation for a Strategic Plan for the NFH System

In October 2000, the Service began to bring together the perspectives, findings, and recommendations from several activities in order to develop a strategic plan for the National Fish Hatchery System that will prepare the System to better fulfill its responsibilities for conserving aquatic resources. The 3As Evaluation, the products of eight internal Fish and Wildlife Service Workgroups, other internal projects, findings and recommendations from the GAO audit, results of the Sportfishing and Boating Partnership Council's Hatchery Review, and other hatchery improvement recommendations will be considered during development of the strategic plan.

3As Evaluation

The Alignment, Appropriateness, and Adequacy Evaluation will provide valuable information for the strategic plan. Initial results of the Alignment analysis are presented in this report. Analysis of Appropriateness and Adequacy are underway. The initial analyses of the 3As data have provided a clearer picture of the fish production programs of the NFHS as a whole and of each of the Service's six Regions that operate hatcheries. The data also spawned new and more detailed questions. After much deliberation, the Fisheries Programmatic Assistant Regional Directors (PARDs), the Division of National Fish Hatcheries, and the Assistant Director-Fisheries decided in August 1999 that many of these questions could best be answered by workgroups assembled from within the Service's Fisheries Program.

Workgroups

The Fish and Wildlife Service workgroups, composed of individuals from all levels of the Fisheries Program, were tasked with reviewing and investigating many of the more detailed and complex questions regarding alignment. Questions dealing with the 3As process itself, science and technology, Fisheries Operational Needs System (FONS), reimbursable activities, conservation exchanges, Tribal issues, hatchery authorities, and NFHS outreach were assigned to individual workgroups. Workgroups were generally given until March 1, 2000 to complete all of their assigned tasks. Tasks were as follows:

3As Process Workgroup
The 3As Process Workgroup was tasked with providing quality assurance and quality control to the database. All data were to be examined, and any errors discovered were to be corrected by the workgroup members, in concert with Regional personnel.

This workgroup was also tasked with securing from the Regions a detailed justification for each of 101 non-aligned production programs. As part of this process, the workgroup provided each Region with detailed information about each non-aligned program. This was done to afford the Regional Directors an opportunity to examine each program, decide whether or not each should be continued, then document and justify their decision.

Good Science and Technology Workgroup
The Good Science Workgroup was tasked with developing guidance and policies to support sound science, technology, and management within the NFHS. Such guidance and policies were to identify over-arching principles and practices to ensure a basis of good science for program activities. In executing this assignment, the workgroup was requested to identify and/or recommend how the Service should deal with ongoing and future hatchery programs that are not tightly tied to management plans and/or lack meaningful monitoring and evaluation programs. The workgroup was instructed to assume three scenarios relative to annual growth in funding available to meet "Implementation Needs," namely 5%, 50%, and 100% over the next 5 years, not including adjustments for inflation.

The workgroup assignment was broadened beyond the NFHS to include recommendations for the entire Fisheries Program.

FONS Workgroup
The FONS Workgroup was tasked with developing a process and guidelines to establish a credible, peer reviewed database of projects that are resource outcome oriented. Further, the workgroup was to develop a process to establish priorities within the database, as well as an allocation process using the FONS database.

A main objective in developing FONS is to use the database in Fisheries budget formulation, justification, and execution. In addition, FONS is expected to be used in day-to-day management and outreach activities.

Reimbursables Workgroup
The Reimbursables Workgroup was tasked with developing a policy that would ensure full and fair recovery of all direct and indirect costs associated with reimbursable programs in a manner consistent with general Service policy pertaining to overhead rates and interagency agreements. Along with this charge, the workgroup was asked to develop a policy and criteria for determining the types of acceptable reimbursable agreements.

The Reimbursables Workgroup was also charged with developing a process for identifying production programs for which the Service is not currently being reimbursed but which would be good candidates for pursuing reimbursement from other Federal agencies, water and power providers, or water and power users.

Conservation Exchanges Workgroup
The Conservation Exchanges Workgroup was assigned responsibility for examining production programs conducted as conservation exchanges and developing a policy and criteria determining the kinds of conservation exchanges that should be pursued and those that should not, as well as for ensuring full and fair exchanges (i.e., reciprocity).

Tribal Workgroup
The Tribal Workgroup was tasked with developing a protocol to examine existing Tribal programs and determining the underlying basis of each program, as those bases relate to the Secretary of the Interior's Trust Responsibilities and his other responsibilities. This workgroup was also assigned responsibility for developing a process to encourage shifts from programs that produce nonnative species to ones that produce native species. In addition, the workgroup was charged with developing a process to encourage greater cost-sharing and revenue enhancements for Tribal production programs.

This workgroup was also tasked with developing an overall collaborative framework within which the Service could work with Tribes, on a government-to-government basis, to achieve the desired outcomes described above.

Authorizations Workgroup
The Authorizations Workgroup was charged with working with the Division of National Fish Hatcheries to compile a complete database of authorities pertaining to Service hatcheries and their production programs. This database was to include: authorities for initial construction and operation of Service hatcheries and production programs, amendments to those authorities, general authorities pertaining to hatchery operations, and new authorities that resulted in changes to original hatchery programs.

Outreach Workgroup
The Outreach Workgroup was assigned responsibility to improve understanding and appreciation for the mission of the Service's Fisheries Program in general, and for its hatchery operations in particular. A key component of this charge was the development of an accurate and complete description of the NFHS, particularly its various responsibilities, authorities, and priorities, and the extent to which its production programs serve those purposes.

Other Internal Projects

Fish Production Classification System
Preliminary Alignment data from the 3As survey suggested opportunities for improving the system used to classify the fish and fish eggs produced at Service hatcheries. Consequently, in March of 1999, the Division of National Fish Hatcheries, with the assistance of an informal working group comprising Regional personnel, developed an alternative classification system and sought formal and informal comments from within the Service. Midway through this process, the General Accounting Office, as part of its audit of the NFHS, also recognized that the Service's classification system needed to be updated. In response to this recommendation, the

Division of National Fish Hatcheries accelerated its efforts to revise the classification system. The new classification system was implemented at the beginning of FY2001. The new system will enable production of fish and fish eggs to be reported in greater detail and will provide greater capability in examining and sorting production information. It will also implement new definitions and protocols that will help in standardizing uses of the new classification system across all Service Regions.

Documentation of Hatchery Needs and Accomplishments

The NFHS has recently completed thorough inventories of its operational needs (FONS), maintenance needs, and accomplishments. This information is being used to evaluate individual facilities, as well as develop Regional and National perspectives and budget proposals. Likewise, it is being used in conjunction with the 3As Evaluation to assess the status of each hatchery and its capability to address various opportunities, challenges, and issues, and to establish expectations for individual hatcheries, as well as the NFHS as a whole. This information is critically important as the NFHS strives to meet growing demands for fish production and for application of state-of-the-art science and technology in fish production.

GAO Findings and Recommendations

Beyond the findings on the purposes for which NFHS fish are produced and the recommendation to improve the fish and fish egg classification system discussed previously, GAO made other findings and recommendations that will be valuable to development of the strategic plan.

Additional Phase I findings include:

Funding level and impact on operations

- Appropriations for the NFHS dropped by 15% in constant 1999 dollars from FY 1992 - FY 1999.
- About one-fourth of the positions at NFH's are vacant.
- 1998 fish distribution was about 19% below 1992 levels.
- Besides reducing fish production, strategies to deal with funding shortages included transferring some NFH's to states, seeking more reimbursement, deferring maintenance, and relying more on volunteers.

Issues related to fish health and disease problems at hatcheries

- Much remains to be learned about the interaction of diseases between wild fish and hatchery-raised fish.

Phase II of the GAO audit focused on statutory authorities for the NFHS. Findings and recommendations include:

Findings

- The laws governing NFH's authorize and direct the hatcheries to engage in a wide variety of activities.
- Current activities of the NFH's fall within these wide boundaries.
- Current FWS emphasis is on restoration and recovery.
- FWS has been charged with meeting a variety of goals that sometimes conflict or for which the hatcheries are not well located.

Recommendations

- Congress should provide direction as to which programs it wants hatcheries to emphasize and provide FWS with authority to close, change, move, and consolidate hatcheries.
- Congress should provide FWS with clear authority to seek reimbursement for all hatchery operations and maintenance expenses associated with federal water development projects.

Sport Fishing and Boating Partnership Council's Hatchery Review Steering Committee

In an effort to gain additional insights into various aspects of the NFHS, the Service enlisted the support of the Sport Fishing and Boating Council. In August 1999, Director Clark asked the Council to assemble a diverse group to assess the NFHS and offer perspectives and recommendations about the future of the System. The Council subsequently assembled representatives of various organizations, agencies, and interests concerned about the various roles of NFHs in aquatic resource conservation, and future opportunities and directions available to the NFHS.

The Council's Hatchery Review Steering Committee will provide perspectives and recommendations that will be weighed carefully by the Service. The Committee concluded its business in September 2000.

Other Hatchery Recommendations

There are a number of other activities underway that include recommendations to improve hatchery programs in general. These recommendations will also be considered in development of the strategic plan. These include recent biological opinions of the National Marine Fisheries Service in the Pacific Northwest under the Endangered Species Act, the Artificial Production Review and other reports completed by the Northwest Power Planning Council, the work of the Hatchery Scientific Review Group initiated by the Senate Appropriations Committee, and reports prepared under the leadership of the American Fisheries Society. Input from other stakeholders will also be integrated into the strategic plan.

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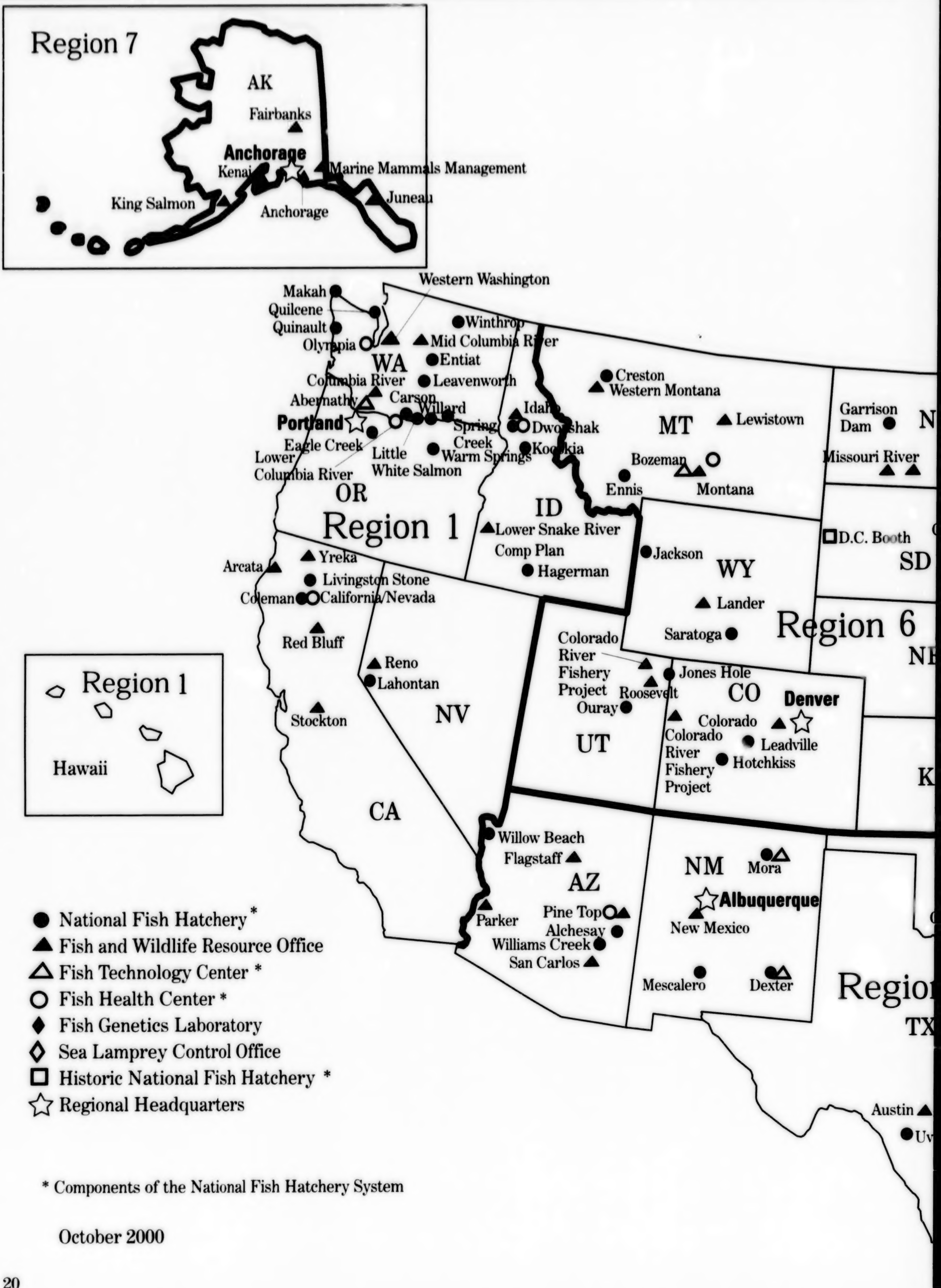
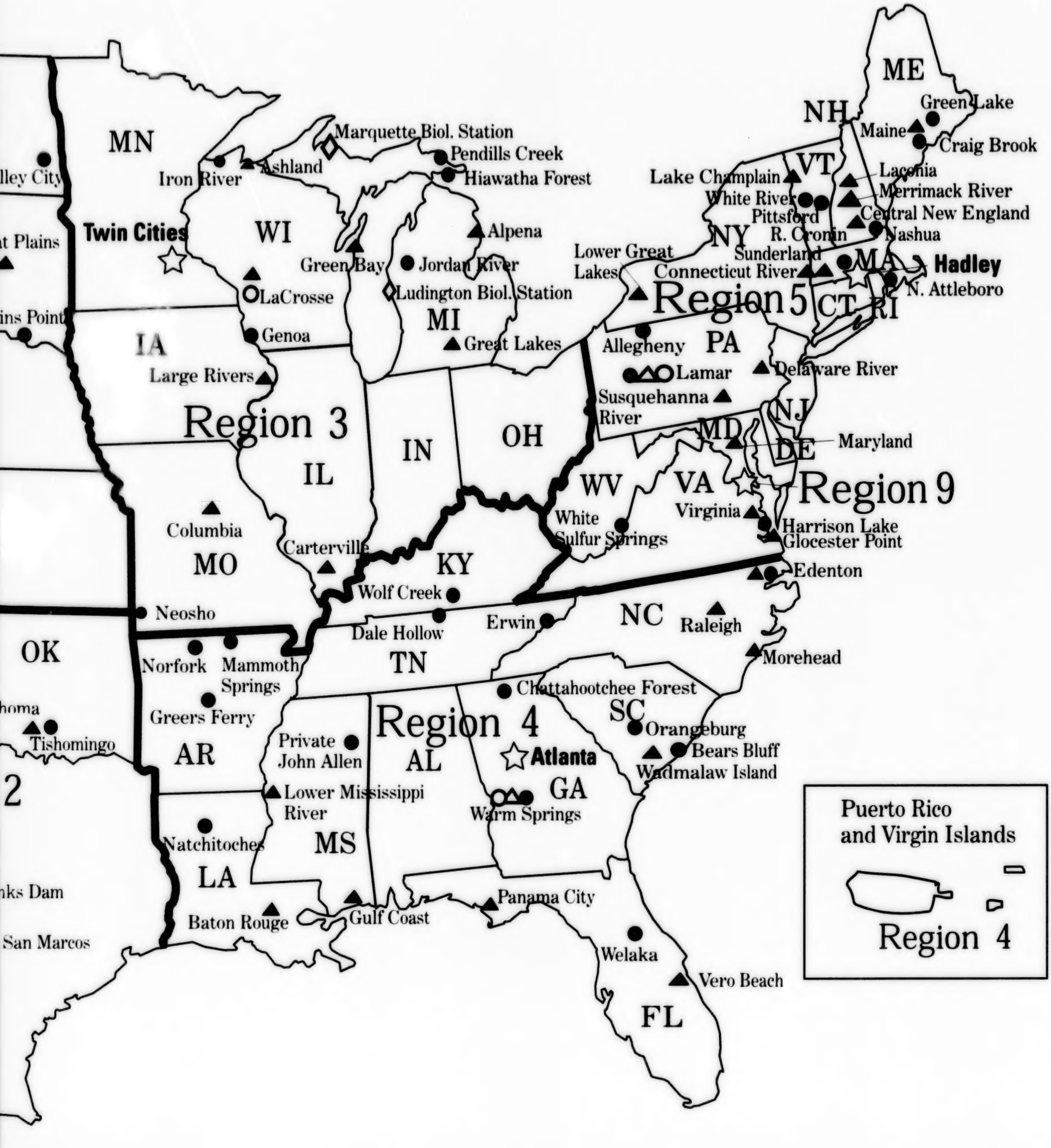
Appendix A

Location of National Fish Hatcheries, Fish Health Centers, Fish Technology Centers, and Fishery Resource Offices



* Components of the National Fish Hatchery System

October 2000


ME
Green Lake
Maine
Craig Brook
NH
VT
Laconia
Merrimack River
Central New England
Nashua
Lake Champlain
White River
Pittsford
R. Cronin
NY
Sunderland
Connecticut River
MA
Hadley
N. Attleboro
CT
RI
Lower Great Lakes
Region 5
MN
Valley City
Iron River
Ashland
Marquette Biol. Station
Pendills Creek
Hiawatha Forest
Alpena
Twin Cities
WI
Green Bay
Jordan River
Ludington Biol. Station
LaCrosse
Genoa
MI
Great Lakes
IA
Large Rivers
Region 3
IL
IN
OH
Allegheny
PA
Lamar
Delaware River
Susquehanna River
NJ
MD
DE
Maryland
WV
VA
Region 9
White Sulfur Springs
Virginia
Harrison Lake
Glocester Point
Columbia
MO
Carterville
KY
Wolf Creek
Edenton
Neosho
Dale Hollow
Erwin
NC
Raleigh
OK
Norfork
Mammoth Springs
TN
Morehead
Chattahootchee Forest
SC
Orangeburg
Bears Bluff
Wadmalaw Island
Greers Ferry
Tishomingo
AR
Private John Allen
Region 4
AL
Atlanta
GA
Warm Springs
2
Lower Mississippi River
Natchitoches
MS
LA
Baton Rouge
Gulf Coast
Panama City
San Marcos
Welaka
Vero Beach
FL
Puerto Rico and Virgin Islands
Region 4

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Appendix B

3As Survey Form and Guidance

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Evaluation of Alignment, Appropriateness, and Adequacy of Propagation Programs at National Fish Hatcheries
January 1998

The U.S. Fish and Wildlife Service is initiating an evaluation of fisheries propagation programs. The intent of this evaluation is to ensure that propagation activities are responsive to resource management needs while being **aligned** with National Fisheries Priorities. The evaluation will determine whether propagation programs are the **appropriate** tool, having been preceded by analyses that show the programs have the potential to meet fishery management goals and objectives. It will also determine if propagation programs have **adequate** support in planning, implementation, and evaluation for the present and the future.

Federal propagation programs play an important role in fishery and ecosystem management. This evaluation will critically examine these propagation programs to ensure they address present and future needs. The focus on **alignment, appropriateness** and **adequacy** will enable the Service to manage propagation programs more actively and effectively.

FACILITY NAME AND ORGANIZATION CODE:
PROPAGATION PROGRAM NAME OR DESCRIPTION: (A propagation program is a distinct activity that is undertaken to meet distinct management objectives prescribed in a fishery management plan, ecosystem management plan, recovery plan, Cooperative Agreements, etc.)
PROPAGATION PROGRAM IDENTIFICATION NUMBER: (Assign the current fiscal year followed by a 3 digit serial number, e , *1998-001)*
ANNUAL PRODUCTION: (Indicate number and pounds)
SHARED CODE: (If project is shared with another facility, enter the leading facility's 3 letter FIS code)
SPECIES CODE(S) AND STRAIN IF APPROPRIATE: (3 letter FIS code) (See attached FIS Species Codes)

Appendix B

3As Survey Form and Guidance

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Alignment

Hatchery production programs are **aligned** when they contribute to one or more of the Service's Fisheries Program Priorities listed below. Indicate which of the following priorities apply to the propagation program identified above by placing a check (_) in the appropriate column(s) to the right. Use of the "Comments" box is optional. You may include in this box any additional information you choose. If the production program does not fit one of the Fisheries Program Priorities, complete the "Exceptions" Section below.

Fisheries Program Priorities	**() those that apply**	**Comments**
1. Recovery of listed and candidate aquatic species		
2. Restoration of interjurisdictional fisheries and aquatic ecosystems		
3. Management of interjurisdictional fisheries		
4. Fulfilling mitigation obligations		
5. Restoring depleted aquatic populations to preclude listing		
6. Providing fish and wildlife management assistance to tribes and on Fish and Wildlife Service lands		

Some programs may be not be aligned within the priorities listed above because of legislative mandates and court orders,or because they are funded as cost reimbursables or as trade-off agreements detailed in MOUs or other binding agreements. Indicate by placing a check (_) in the appropriate box, which of the following exceptions apply to the non-aligned propagation program identified above. Attach to this evaluation form a copy of the document authorizing the exception. For lengthy court orders or legislation, citation of the document in the "Comments" section would be sufficient.

Exceptions	**() those that apply**	**Comments**
7. Trade-offs		
8. Legal (Court Order)		
9. Legislative Mandate		
10. Cost Reimbursed Activities		

Appropriateness

A hatchery propagation program is **appropriate** when it is preceded by the right kinds of planning and feasibility analyses described below, and those analyses indicate the project has the potential to bring about the desired fishery management goal. To determine the appropriateness of the above referenced propagation program, indicate by a check(_) whether or not the item has been or is currently being evaluated or considered in this propagation program. A check (_) in the (Y=yes) column implies you or your partners have the scientific knowledge, information, or data needed to proceed with the program. A (N=no) response implies that this information is lacking or insufficient. To further clarify the level of importance of this factor, indicate by a check (_).... (1) if it is critical, (2) useful, or (3) not necessary with respect to the program being evaluated. Use of the "Comments" box is optional. You may include in this box any additional information you choose. Items with "NA" are not applicable and do not require a response.

Biological and Ecological Appropriateness	**Y**	**N**	**1**	**2**	**3**	**Comments**
11. The habitat and ecological conditions of the proposed receiving water(s) meet the environmental requirements of the cultured species.						
12. Harvest management regulations are in place and are appropriate for meeting management objectives.						
13. An evaluation of the status and trends of the subject fish stock or population indicates that the population or stock is depressed and/or overexploited and is below its natural carrying capacity.						
14. The aquatic system has been evaluated and is sufficient to support the fish stocking rate while conserving native fishes and ecosystem health or dynamics.						
15. Potential effects of cultured fish on wild fish have been assessed and determined to be both acceptable and consistent with management objectives.						
16. Potential genetic implications have been assessed and incorporated into the stocking program.						
17. Potential fish health implications have been assessed and incorporated into the stocking program.						
18. The potential for stocked fish to expand into nontarget habitats has been evaluated and determined to be acceptable.						

Sociological and Economic Appropriateness	Y	N	1	2	3	Comments
19. This propagation program is generally supported by the public and other stakeholders.						
20. This propagation program has been determined to be a cost-effective means of fulfilling the management objectives.						

Administrative and Operational Appropriateness	Y	N	1	2	3	Comments
21. All necessary consultations and permits (including those required under the Endangered Species Act, State statutes and regulations, or statutes and regulations of other Federal and/or Tribal agencies) are on file at the production facility.			NA	NA	NA	
22. The propagation program is in compliance with the Service's Fish Health Policy (Part 713 FW1-4).			NA	NA	NA	
23. The propagation program is in compliance with the Service's Broodstock Policy (Part 712 FW 1-1). **SKIP QUESTION IF NOT A NATIONAL BROODSTOCK PROGRAM.**			NA	NA	NA	
24. The numbers, sizes, and types of fish reared, along with the timing and location(s) for stocking have been coordinated with all involved parties having authority over the affected water(s) and fishery resource(s).						
25. Criteria have been established to evaluate stocking and determine that objectives are achieved.						

Adequacy

A hatchery propagation program is supported **adequately** when it is planned, implemented, and evaluated effectively and efficiently. In answering these questions, focus on what is being done after a stocking program is found to be appropriate. In answering these questions, focus on what is required to successfully implement and monitor the propagation program after it is found to be appropriate. In the case of programs that are being considered for implementation or expansion, answer the questions below in terms of what you are confident will occur or be true.

To determine the adequacy of the above referenced propagation program, indicate by a check(_) whether or not the item has been or is currently being evaluated or considered in this propagation program. A check (_) in the (Y=yes) column implies you or your partners have the scientific knowledge, information, or data needed to proceed with the program. A (N=no) response implies that this information is lacking or insufficient. To further clarify the level of importance of this factor, indicate by a check (_).... (1) if it is critical, (2) useful, or (3) not necessary with respect to the program being evaluated. Use of the "Comments" box is optional. You may include in this box any additional information you choose. Items with "NA" are not applicable and do not require a response.

Biological and Ecological Adequacy	**Y**	**N**	**1**	**2**	**3**	**Comments**
26. Outcomes of the stocking program on the managed population or stock are monitored and evaluated to determine effectiveness.						
27. The stocking program is monitored and evaluated for effects on the aquatic community.						
28. The potential effect of the stocking program on non-target fishes has been evaluated.						

29. Sufficient numbers are marked for evaluation purposes.						
30. Protocols are in place to control the transfers of disease/pathogens between wild fish and hatchery fish.						
31. Protocols are in place to control the inadvertent transfer of aquatic nuisance species.						
32. The quantity and quality of the water supply and physical plant facility is adequate to carry out the intended propagation program.						

Sociological and Economic Adequacy	**Y**	**N**	**1**	**2**	**3**	**Comments**
33. Processes are in place to measure if stakeholders expectations are being met.						
34. Propagation programs are analyzed to ensure cost/ benefit effectiveness.						

Administrative and Operational Adequacy	**Y**	**N**	**1**	**2**	**3**	**Comments**
35. Operational funding is adequate to meet program objectives.						
36. Staffing is adequate to meet program needs.						
37. Infrastructure is adequate to meet program needs						
38. Staff expertise and training is adequate to meet program needs						
39. Hatchery operations are in compliance with Federal, Tribal and State regulatory permits.			NA	NA	NA	

Prepared by:
Name: ____________________ Title or Position: ____________________
Date: ____________________ Telephone: ____________________

Regional Review by:
Name:____________________ Title or Position: ____________________
Date: ____________________ Telephone: ____________________

Date Received by the Division of National Fish Hatcheries: ____________________

Washington Office Review by:
Name ____________________ Title or Position: ____________________
Date: ____________________ Telephone: ____________________

Definitions

1) *Adequacy* - A propagation program is supported adequately when it is planned, implemented, and evaluated effectively and efficiently.

2) *Alignment* - A propagation program is aligned when it contributes to one or more of the Service's Fisheries Program Priorities.

3) *Appropriateness* - A propagation program is appropriate when it is preceded by analyses that indicate the program has the potential to achieve a specific goals and objectives set forth in fishery management plans, species recovery plans, or cooperative agreements.

4) *Depleted Fishery Resources* - Species, populations, or stocks not yet listed as endangered, threatened, or candidates under the ESA, but which may soon become so unless restoration and/or conservation actions are taken (not limited to interjurisdictional species).

5) *Propagation Program* - Distinct activity undertaken to meet management goals and objectives prescribed in a fishery management plan, ecosystem management plan, recovery plan, or Cooperative Agreement.

6) *Interjurisdictional Fisheries* - Fisheries whose management and allocation are the collective responsibility of two or more States, Tribes, and/or other Nations.

7) *Mitigation* - Activities "compensating for the impact (usually reductions in natural fish production caused by Federal water development projects) by replacing or providing substitute resources or environments" (40CFR 1508.20[e]).

8) *Recovery* - Rebuilding or reestablishing self-sustaining fish in accordance with objective, criteria, strategies, etc., specifically identified in recovery plans developed and approved under the ESA. Prelisting Recovery of candidate species will be conducted according to approved fishery management plans.

9) *Reimbursable Activity* - A propagation program that is funded by a State cooperator, Tribal government, other Federal agencies, outside organizations, or the private sector through a formal agreement.

10) *Restoration* - Actions taken to reestablish self-sustaining fish that have declined significantly from historic levels.

11) *Trade-Off* - Programs conducted through formal cooperation with partners in which the Service raises species for its partner(s) in exchange for activities that contribute to one or more of the Service priorities.

12) *Tribal trust responsibilities* - Obligations on the part of the United States for those natural resources, either on or off Indian lands, retained by, or reserved by or for Indian Tribes through treaties, statutes, judicial decisions, and executive orders.

Defining Propagation Programs

The successful completion of the 3As process and the utility of the information it provides will be determined largely by the quality and consistency of information reported. In order to draw useful comparisons from any database developed from this process and to integrate this information successfully with FIS, we need to ensure that all participants approach the definition of what is a "propagation program" using the same sideboards. The best way to illustrate this is by using some general and specific examples.

A propagation program is a distinct activity that is undertaken by the Service to meet specific management objectives. These management objectives are usually defined in either a fishery management plan, ecosystem management plan, species recovery plan, or detailed in a cooperative agreement or other planning document. In general, a propagation program involves the raising of fish or other aquatic organisms to address a specific management objective in a specific waterbody. For example, the production of 200,000 catchable rainbow trout for mitigation purposes and the release all of these fish in the same river would be considered a single propagation program, provided that all 200,000 fish were being stocked to meet a specific management objective in a single mitigation plan, even if these stockings occurred at multiple locations within the same riverway. The stocking of brown trout by the same NFH in this same river, at the same or different locations, under the same mitigation plan, would be considered a second propagation program. In contrast, the rearing of 200,000 largemouth bass for stocking in 20 lakes and ponds on Federal or Tribal lands by a single NFH would be evaluated as 20 separate propagation programs in the 3As process if each waterbody is managed under its own fishery management plan.

The following are a few examples of "propagation programs" pulled from the 1995 evaluation of hatchery alignment with Fisheries Program Priorities that emerged from the 1995 Directorate meeting in Shepherdstown, WV, and from the database supporting the annual Fish and Fish Egg Distribution Report:

- Genoa NFH produces 450 walleye for stocking in Burney Lake in response to a tribal fishery management plan that identifies walleye as a priority species for recreational fishing and subsistence. This is a single propagation program.
- Genoa NFH produces 200,000 fingerling largemouth bass for mitigation at federal water projects and stocks fish in Shelbyville Lake, Rend Lake, and Carlyle Lake. This represents three distinct propagation programs — one associated with each COE reservoir.
- Harrison Lake NFH produces 3.6 million American shad fry for stocking in the Potomac River and James River to support interjurisdictional fisheries restoration efforts. Assuming that every stocking site in each river is managed in accordance with the same specific fishery management objective, the Potomac River and James River stockings represent two distinct propagation programs.
- The Ennis NFH produces 35,000 eggs of six disease free, genetically distinct strains of rainbow trout for broodstock to support restoration of interjurisdictional fisheries. These eggs are distributed to six States and five Federal hatcheries. Fish resulting from these eggs are then used in a variety of fishery management programs. Every use that is pursued in accordance with a distinct fishery management plan should be construed as a separate propagation program. Consequently, Ennis NFW needs to treat each separate use of these 35,000 eggs as a distinct propagation program.
- Bowden NFH produces 250,000 rainbow trout of a single strain for stocking in over 30 different streams and lakes in the Monongahela National Forest. This would represent 30 separate propagation programs unless two or more of the waters stocked satisfy the same objective identified in a fishery management plan or other planning document.
- In addition to rainbow trout, Bowden NFH produces about 9,000 brown trout and 24,000 brook trout for stocking at the Monongahela National Forest. The brown trout are stocked in 9 of the waters also stocked with rainbow trout. The brook trout are stocked in 20 of these same waters. Overall, providing fish to the U.S. Forest Service at the Monongahela National Forest could represent 59 separate propagation programs, unless as noted above, two or more of the waters stocked satisfy the same objectives identified in a fishery management plan. In this case, providing fish to the Forest Service could be treated and reported as involving fewer than 59 programs.

- Orangeburg NFH produces 3.8 million Santee River strain striped bass for COE mitigation at Lake Moultrie, Lake Murray and the Copper River. This represents 3 distinct propagation program, assuming that each stocking site within these waters is managed under the same fishery management goals and objectives.
- Allegheny NFH produces lake trout to support Service and interjurisdictional efforts to restore this species in the Great Lakes. The hatchery produces Marquette and Seneca Lake strains for stocking in Lake Ontario and the Seneca Lake strain and two strains from Lewis Lake for restoration efforts in Lake Erie. These represent five different lake trout propagation programs.
- White Sulphur Springs NFH rears the Erwin and Shasta strains of rainbow trout. Excess or spent broodfish are transferred to the Tate Lohr SFH and Edray SFH for stocking State waters open to recreational fishing. This is not a propagation program provided such excesses do not occur every year.

Propagation Programs in the 3As Evaluation

As illustrated by these examples, defining a hatchery propagation program for reporting in the 3As process requires knowledge of both the history and practices involved in the culture of the species and or strain, and the long-term strategies developed for their management. The following protocol was developed in the Washington Office to assist in making consistent determinations. The protocol uses a dichotomous process to arrive at a decision as to whether or not a particular hatchery program is in fact a "propagation program" for evaluation in the 3As process. To use the protocol, begin at the first question, choose the appropriate response for the subject propagation program, and follow the key to its conclusion.

Select ✔ (a) or (b) in each of the following statements and continue the evaluation by following the sequence of statements by the choices made in each.

☐ 1(a) The hatchery program involves the culture and/or stocking of a single species. 2

☐ 1(b) The hatchery program involves the culture and/or stocking of more than one species 8

☐ 2(a) The hatchery program involves the culture and/or stocking of more than one strain or the strain has not been identified 3

☐ 2(b) The hatchery program involves the culture and/or stocking of one strain 4

☐ 3(a) The hatchery program involves a species of undefined, unknown, or unregistered strain 4

☐ 3(b) The hatchery program involves known multiple and/or registered strains of a single species. 8

☐ 4(a) All the fish produced in this hatchery program are stocked in a single waterbody at one or more stockinglocations............ 5

☐ 4(b) The fish produced in this hatchery program are stocked in multiple waters 6

☐ 5(a) The waterbody and stocking locations are defined in a fishery management plan, species recovery plan, or other planning document that provides specific management goals and objectives for this stocking. 7

☐ 5(b) The waterbody and stocking locations are not defined in a fishery management plan, species recovery plan, or other planning document that provides specific management goals and objectives. 8

☐ 6(a) The multiple waters stocked with the hatchery product are covered by a single fishery management plan, species recovery plan, or other planning document that provides specific management goals and objectives for this stocking. 7

☐ 6(b) The multiple waters stocked with the hatchery product are not covered by a single fishery management plan, species recovery plan, or other planning document that provides specific management goals and objectives 8

☐ 7. This hatchery program is a PROPAGATION PROGRAM

☐ 8. This hatchery program is NOT A PROPAGATION PROGRAM

If the subject program results in a finding that it is not a "propagation program" as defined for the 3As evaluation, you must reconsider your approach and take a critical look how the hatchery program can be redefined to fit the process.

Appendix C

Non-Aligned Production Programs by Region and Facility

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APPENDIX C: NON-ALIGNED PRODUCTION PROGRAMS BY REGION AND FACILITY

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish
2	ALCHESAY-WILLIAMS CREEK NI	1998-004	FORT HUACHUCA ARMY BASE	Rainbow trout	18,000	4,021
		1998-097	ARIZONA STATE UNIVERSITY - RESEARCH	Rainbow trout	220	106
2	INKS DAM NFH	1998-003	NM - BILL EVANS LAKE - FEDERAL AID STUDY	Largemouth Bass	5,035	1,325
		1998-005	CADDO NATIONAL GRASSLAND	Channel catfish	4,225	1,207
		1998-023	ARIZONA - BUBBLING PONDS SFH GROW-OUT	Channel catfish	49,875	2,375
		1998-026	TEXAS - KIDS FISHING DERBIES - FIVE LOCATIONS	Channel catfish	5,150	3,393
		1998-027	TEXAS - INKS LAKE	Channel catfish	3,190	2,900
		1998-028	UTAH - JORDAN RIVER (SECT. 5)	Channel catfish	18,020	3,400
2	MESCALERO NFH	1998-022	FORT HOOD ARMY BASE	Rainbow trout	8,022	3,385
		1998-030	NM - QUEMADO LAKE	Rainbow trout	25,855	912
2	TISHOMINGO NFH	1998-010	FORT SILL ARMY BASE - MULTIPLE WATERS	Channel catfish	30,954	2,959
		1998-026	WYOMING - MULTIPLE WATERS (11)	Channel catfish	120,500	5,582
		1998-028	CADDO NATIONAL GRASSLAND - 27 PONDS	Channel catfish	36,302	3,252
		1998-062	LBJ NATIONAL GRASSLANDS -13 PONDS	Channel catfish	8,925	637
		1998-066	OUACHITA NATIONAL FOREST - 7 PONDS	Channel catfish	10,350	691
		1998-073	BLACK KETTLE NATIONAL GRASSLANDS - 5 PONDS	Channel catfish	16,750	1,133
		1998-087	CAMP SIMPSON (BSA) - BOY SCOUT LAKE	Channel catfish	6,983	406
		1998-088	CAMP SLIPPERY FALLS (BSA) - LAKE PAYNE	Channel catfish	8,084	470
		1998-097	LANGSTON UNIVERSITY - RESEARCH PONDS	Channel catfish	21,000	2
		1998-100	MONTANA - MULTIPLE LAKES (5)	Channel catfish	24,200	267
		1998-105	OKLAHOMA - OUTDOOR CLASSROOMS	Channel catfish	1,124	488
		1998-113	TEXAS - FISHING DERBY	Channel catfish	1,464	732
		1998-114	TINKER AFB - MULTIPLE PONDS (4)	Channel catfish	600	43
2	UVALDE NFH	1998-016	NM - BILL EVANS LAKE- FEDERAL AID STUDY	Largemouth Bass	3,000	322
		1998-026	NM - KIDS FISHING DERBIES (2)	Channel catfish	1,028	1,286

APPENDIX C: NON-ALIGNED PRODUCTION PROGRAMS BY REGION AND FACILITY

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish
3	GENOA NFH	1997-035	SOUTH FORK BAD AXE RIVER (WI)	Brook trout	2,016	112
		1997-037	BIG MUSKEGO LAKE (WI)	Northern Pike	500,000	1
		1997-039	COON CREEK (WI)	Brook trout	2,988	166
		1997-041	TRANSFER TO NON-SERVICE FACILITY - FAIRPORT SFH	Walleye	210,000	2
		1997-045	KICKAPOO SPRINGS (WI)	Brook trout	2,352	130
		1997-046	PINNACLE ROCK (WI)	Brook trout	2,190	121
		1997-047	SIDE HOLLOW LAKE (WI)	Walleye	150	300
4	DALE HOLLOW NFH	1997-018	CUMBERLAND R, TN, PART. MGT. - RBT	Rainbow trout	5,314	1,698
		1997-019	L.TENN R BASIN, TN, PART. MGT. - RBT/SFH	Rainbow trout	61,121	20,543
4	NATCHITOCHES NFH	1997-011	CORNEY LAKE	Largemouth bass	165,352	126
		1997-012	TRANSFER TO NON-SERVICE FACILITY	Bluegill	2,805	33
4	NORFORK NFH	1998-033	TRANSFER TO NON-SERVICE FACILITY - MS GULF COAS	Rainbow trout	1,200	171
4	WOLF CREEK NFH	1997-009	CUMBERLAND R BASIN, KY, PART. MGT. - RBT	Rainbow trout	97,250	29,332
		1997-010	CUMBERLAND R BASIN, KY, PART. MGT. - BNT	Brown trout	10,225	1,998
		1997-011	KENTUCKY R BASIN, KY, PART. MGT. - RBT	Rainbow trout	84,025	27,415
		1997-012	KENTUCKY R BASIN, KY, PART. MGT. - BNT	Brown trout	2,200	370
		1997-013	LICKING R BASIN, KY, PART. MGT. - RBT	Rainbow trout	8,400	2,676
		1997-014	LICKING R BASIN, KY, PART. MGT. - BNT	Brown trout	500	107
		1997-015	GREEN R BASIN, KY, PART. MGT. - BNT	Brown trout	400	85
		1997-016	GREEN R BASIN, KY, PART. MGT. - RBT	Rainbow trout	52,525	15,532
		1997-017	LITTLE SANDY R BASIN, KY, PART. MGT. - RBT	Rainbow trout	25,000	7,955
		1997-018	LITTLE SANDY R BASIN, KY, PART. MGT. - BNT	Brown trout	1,000	214
		1997-019	BIG SANDY R BASIN, KY, PART. MGT. - RBT	Rainbow trout	5,700	1,774
5	ALLEGHENY NFH	1998-007	ALLEGHENY RIVER - EXCESS PRODUCTION	Lake trout	23,000	270

APPENDIX C: NON-ALIGNED PRODUCTION PROGRAMS BY REGION AND FACILITY

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish
		1998-008	ALLEGHENY RIVER - EXCESS PRODUCTION	Lake trout	97,000	1,405
		1998-009	ALLEGHENY RIVER - EXCESS PRODUCTION	Lake trout	35,000	500
5	GREEN LAKE NFH	1998-006	RECREATIONAL FISHING IN GREEN LAKE WATERSHED	LL. Atlantic salmon	2,394	317
6	CRESTON NFH	1997-014	BEAVERTAIL HILL POND AND MCGILVRAY LAKE	Rainbow trout	6,440	2,374
6	GARRISON DAM NFH	1997-003	COOLWATER LAKES UNDER MOU WITH NORTH DAKOTA	Black crappie	82,027	99
		1997-005	COLDWATER LAKES UNDER MOU WITH NORTH DAKOTA	Brown trout	19,856	1,111
		1997-012	SWEETBRIAR DAM	Tiger muskellunge	240	79
		1997-033	COOLWATER LAKES UNDER MOU WITH NORTH DAKOTA	Northern Pike	727,622	656
		1997-044	COLDWATER LAKES UNDER MOU WITH NORTH DAKOTA	Rainbow trout	59,612	18,645
		1997-052	ONEIDA RESERVOIR	Walleye	470,000	4
		1997-075	COOLWATER LAKES UNDER MOU WITH NORTH DAKOTA	Walleye	1,002,560	379
		1997-076	COOLWATER LAKES UNDER MOU WITH NORTH DAKOTA	Walleye	408,000	264
		1997-077	TRANSFER TO NON-SERVICE FACILITY	WalleyeXSaugeye	2,400,000	18
		1997-081	COOLWATER LAKES UNDER MOU WITH NORTH DAKOTA	Smallmouth bass	183,845	270
6	GAVINS POINT NFH	1998-001	FORT CARSON WARMWATER PONDS	Black crappie	10,000	13
		1998-005	FORT CARSON WARMWATER PONDS	Bluegill	26,070	33
		1998-007	TRANSFER TO NON-SERVICE FACILITY - SFH	Channel catfish	275,020	6,627
		1998-011	FORT CARSON WARMWATER PONDS	Largemouth bass	5,000	7
		1998-012	TRANSFER TO NON-SERVICE FACILITY	Largemouth bass	304,720	52
		1998-013	TRANSFER TO NON-SERVICE FACILITY	Largemouth bass	210,960	36
		1998-014	TRANSFER TO NON-SERVICE FACILITY	Largemouth bass	56,400	141
		1998-032	TRANSFER TO NON-SERVICE FACILITY - SFH	Smallmouth bass	12,000	23
		1998-036	TRANSFER TO NON-SERVICE FACILITY	Walleye	800,000	6
		1998-037	LAHOTAN RESERVOIR	Walleye	750,000	6
		1998-038	RYE PATCH RESERVOIR	Walleye	750,000	6
		1998-057	TRANSFER TO NON-SERVICE FACILITY	Walleye	0	0

APPENDIX C: NON-ALIGNED PRODUCTION PROGRAMS BY REGION AND FACILITY

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish
6	HOTCHKISS NFH	1998-011	COCHETOPA CREEK (AND OTHERS)	Cutthroat trout	7,126	13
		1998-015	ACADEMY POND, GRACE POND, SAPHIRE POND, AND LE	Rainbow trout	19,441	5,618
		1998-017	COLBRAN JOB CORP POND	Rainbow trout	1,500	577
		1998-020	CDOW WHIRILING DISEASE REIMBURSABLE	Rainbow trout	317,391	11,169
6	JACKSON NFH	1998-004	WARREN AIR FORCE BASE	Cutthroat trout	12,886	1,001
		1998-008	GROS VENTRE RIVER WATERSHED	Cutthroat trout	10,986	2,503
		1998-010	GRAND TETON NATIONAL PARK - TRAPPER AND BEAR P	Cutthroat trout	1,500	6
		1998-011	TREASURE LAKE - BOY SCOUT CAMP	Cutthroat trout	200	34
		1998-012	JACKPINE CREEK - HOMESITE PONDS	Cutthroat trout	1,094	115
		1998-014	GREYS RIVER	Cutthroat trout	4,195	1,001
6	JONES HOLE NFH	1998-040	WEST GREEN LAKE - TAKE A KID FISHING DAY	Brook trout	627	570
		1998-049	AIR FORCE WATERS - UNSPECIFIED	Brook trout	7,700	341
		1998-050	FORT CARSON - UNSPECIFIED	Brook trout	3,300	147
6	LEADVILLE NFH	1998-005	PETERSON AIRFORCE BASE - MIDDLE AND NORTH PONI	Cutthroat trout	11,491	3,438
		1998-006	FORT CARSON ARMY BASE - (6) COLDWATER LAKES	Cutthroat trout	51,692	11,514
		1998-007	FORT CARSON ARMY BASE - (4) COLDWATER LAKES	Brook trout	2,256	160
		1998-008	FARISH MEMORIAL - (3) COLDWATER LAKES	Cutthroat trout	18,631	5,146
		1998-010	AIR FORCE ACADEMY - (5) COLDWATER LAKES	Cutthroat trout	25,055	6,770
		1998-012	PUEBLO ARMY DEPOT - PUEBLO ARMY DEPOT LAKE	Cutthroat trout	6,456	1,885
6	VALLEY CITY NFH	1997-001	WAMWATER LAKES UNDER MOU WITH ND GAME AND FI	Bluegill	84,900	64
		1997-004	WARMWATER LAKES UNDER MOU WITH ND GAME AND I	Largemouth bass	396,800	228
		1998-009	DU REARING POND UNDER MOU WITH ND GAME AND FI	Tiger Muskellunge	2,500	2
		1997-015	COOLWATER LAKES UNDER MOU WITH ND GAME AND F	Northern Pike	500,480	243
		1997-021	COOLWATER LAKES UNDER MOU WITH ND GAME AND F	Walleye	207,560	162
		1997-026	COOLWATER LAKES UNDER MOU WITH ND GAME AND F	Yellow perch	48,600	193
		1997-031	COOLWATER LAKES UNDER MOU WITH ND GAME AND F	Yellow perch	0	0

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Appendix D

Broodstock Programs and Internal Transfers

APPENDIX D: BROODSTOCK PROGRAMS AND INTERNAL TRANSFERS

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish	Num Eggs
1	CARSON NFH	1998-002	SPRING CHINOOK PROGRAM - BIG WHITE SALMON PONDS AN	Chinook salmon	965,700	773	0
1	COLEMAN NFH	1998-006	TRANSFER TO NON-SERVICE FACILITY - BODEGA BAY MARINE	Chinook salmon	160	7	0
1	DWORSHAK NFH	1998-004	MAGIC VALLEY STEELHEAD PROGRAM (TRANSFER TO LSRCP	Steelhead trout	0	0	1,806,312
1	QUILCENE NFH	1998-004	TRANSFER TO NON-SERVICE FACILITY - BIG BEEF FACILITY	Chum salmon	0	0	157,000
		1998-006	TRANSFER TO NON-SERVICE FACILITY - GEORGE ADAMS SFH	Coho salmon	0	0	450,000
2	DEXTER NFH&TC	1998-019	TRANSFER TO NFHS FACILITY - UVALDE NFH	Yaqui catfish	39	39	0
2	MESCALERO NFH	1998-026	TRANSFER TO NFHS FACILITY - DEXTER NFH&TC	Rainbow trout	37,436	594	0
2	UVALDE NFH	1998-015	TRANSFER TO NON-SERVICE FACILITY - HEART OF THE HILLS	Largemouth Bass	400	202	0
		1998-018	TRANSFER TO NON-SERVIVE FACILITY - OKLAMOMA	Largemouth Bass	250	114	0
		1998-020	TRANSFER TO NFH SYSTEM FACILITY - DEXTER NFH/FTC (NU	Channel catfish	30	15	0
		1998-021	TRANSFER TO NFH SYSTEM FACILITY - INKS DAM NFH (TUPEL	Channel catfish	109	659	0
		1998-024	TRANSFER TO NON-SERVICE FACILITY - BROODSTOCK DEVEL	Channel catfish	100	680	0
		1998-025	TRANSFER TO NON-SERVICE FACILITY - HEART OF THE HILLS	Channel catfish	253	690	0
2	WILLOW BEACH NFH	1998-013	TRANSFER TO NFHS FACILITY - DEXTER NFH&TC	Razorback sucker	1,800	1	0
		1998-017	TRANSFER TO NFHS FACILITY - DEXTER NFH&TC	Bonytail chub	4	8	0
3	GENOA NFH	1997-036	TRANSFER TO NON-SERVICE FACILITY - AZ GAME AND FISH	Walleye	0	0	1,400,000
		1997-038	TRANSFER TO NON-SERVICE FACILITY - BYRON SFH (OK)	Walleye	0	0	4,000,000
		1997-040	TRANSFER TO NON-SERVICE FACILITY - ESSEX SFH (NY)	Brown trout	0	0	78,299
		1997-043	TRANSFER TO NON-SERVICE FACILITY - JAKE WOLF SFH (IL)	Northern Pike	0	0	166,500
		1997-044	TRANSFER TO NON-SERVICE FACILITY -TO JAKE WOLF SFH (I	Walleye	0	0	9,202,517
		1997-048	TRANSFER TO NON-SERVICE FACILITY - BYRON SFH (OK)	Saugeye	0	0	3,240,000

APPENDIX D: BROODSTOCK PROGRAMS AND INTERNAL TRANSFERS

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish	Num Eggs
		1997-049	TRANSFER TO NON-SERVICE FACILITY - CORDOVA POWER PL	Walleye	0	0	1,984,000
		1997-050	LAKE KOSHKENONG (WI)	Sauger	0	0	1,181,250
		1997-051	TRANSFER TO NON-SERVICE FACILITY - MILFORD SFH (KS)	Sauger	0	0	1,046,250
		1997-052	TRANSFER TO NFH SYSTEM FACILITY - MAMMOTH SPRINGS N	Walleye	0	0	1,040,000
		1997-053	TRANSFER TO NON-SERVICE FACILITY - RATHBUN SFH - (IA)	Saugeye	0	0	672,000
		1997-054	TRANSFER TO NON-SERVICE FACILITY - POSSUM KINGDOM S	Saugeye	0	0	960,000
		1997-055	TRANSFER TO NON-SERVICE FACILITY -SFH (BUBBLING PONE	Walleye	0	0	5,480,000
		1997-069	LAC DU FLAMBEAU INDIAN RESERVATION	Brown trout	0	0	30,699
3	HIAWATHA FOREST NFH	1997-080	TRANSFER TO NFH SYSTEM FACILITY - JORDAN RIVER NFH	Lake trout	0	0	114,620
		1997-081	TRANSFER TO NFH SYSTEM FACILITY - JORDAN RIVER NFH	Lake trout	0	0	1,337,000
		1997-082	TRANSFER TO NFH SYSTEM FACILITY - JORDAN RIVER NFH	Lake trout	0	0	322,600
		1997-083	TRANSFER TO NFH SYSTEM FACILITY - ALLEGHENY NFH	Lake trout	0	0	110,700
		1997-084	TRANSFER TO NFH SYSTEM FACILITY - ALLEGHENY NFH	Lake trout	0	0	10,000
3	IRON RIVER NFH	1997-100	TRANSFER TO NFH SYSTEM FACILITY - PENDILLS CREEK NFH	Lake trout	320,000	850	0
		1997-101	TRANSFER TO NFH SYSTEM FACILITY - PENDILLS CREEK NFH	Lake trout	118,000	2,790	0
		1997-103	TRANSFER TO NFH SYSTEM FACILITY - JORDAN RIVER NFH	Lake trout	0	0	330,600
		1997-104	TRANSFER TO NFH SYSTEM FACILITY - JORDAN RIVER NFH	Lake trout	0	0	309,000
		1997-105	TRANSFER TO NFH SYSTEM FACILITY - IRON RIVER NFH	Lake trout	0	0	332,800
		1997-106	TRANSFER TO NFH SYSTEM FACILITY - IRON RIVER NFH	Lake trout	0	0	774,700
		1997-107	TRANSFER TO NFH SYSTEM FACILITY - IRON RIVER NFH	Lake trout	0	0	443,380
		1997-108	TRANSFER TO NFH SYSTEM FACILITY - IRON RIVER NFH	Lake trout	0	0	295,900
		1997-109	TRANSFER TO NFH SYSTEM FACILITY - PENDILLS CREEK NFH	Lake trout	0	0	15,150
		1997-110	TRANSFER TO NFH SYSTEM FACILITY - DALE HOLLOW NFH	Lake trout	0	0	274,250
		1997-111	TRANSFER TO NON-SERVICE FACILITY - BAYFIELD SFH (WI)	Lake trout	0	0	210,720
		1997-113	TRANSFER TO NON-SERVICE FACILITY -BAYFIELD SFH (WI)- L	Lake trout	0	0	250,000
4	ERWIN NFH	1998-001	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	2,926,187
		1998-002	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,786,246

APPENDIX D: BROODSTOCK PROGRAMS AND INTERNAL TRANSFERS

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish	Num Eggs
		1998-003	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	700,410
		1998-004	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,661,615
		1998-005	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	97,241
		1998-006	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,295,000
		1998-007	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	969,645
		1998-008	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	211,910
4	MAMMOTH SPRING NFH	1997-017	TRANSFER TO NFH SYSTEM FACILITY - FRY TRANSFERS	Striped Bass	500,000	0	0
4	NATCHITOCHES NFH	1997-004	TRANSFER TO NFH SYSTEM FACILITY - PADDLEFISH RESTOR	Paddlefish	0	0	0
		1997-005	TRANSFER TO NFH SYSTEM FACILITY - PADDLEFISH RESTOR	Paddlefish	112,000	3	0
		1997-006	TRANSFER TO NFH SYSTEM FACILITY - PADDLEFISH RESTOR	Paddlefish	58,200	3	0
4	WELAKA NFH	1998-006	TRANSFER TO NFH SYSTEM FACILITY	Striped Bass	1,010	202	0
		1998-007	TRANSFER TO NFH SYSTEM FACILITY	Striped Bass	375,000	0	0
		1998-008	TRANSFER TO NFH SYSTEM FACILITY	Striped Bass	925,000	0	0
		1998-009	TRANSFER TO NFH SYSTEM FACILITY	Striped Bass	600,000	0	0
5	CRAIG BROOK NFH	1998-007	TRANSFER TO NON-SERVICE FACILITY - PRIVATE HATCHERIE	Atlantic salmon	0	0	76,000
5	GREEN LAKE NFH	1998-005	TRANSFER TO NON-SERVICE FACILITY - SACO RIVER RESTOR	Atlantic salmon	0	0	619,923
5	NASHUA NFH	1998-001	TRANSFER TO NON-SERVICE FACILITY - WARREN SFH (NH)	Atlantic salmon	0	0	1,268,700
		1998-002	TRANSFER TO NFH SYSTEM FACILITY	Atlantic salmon	0	0	3,691,800
5	NORTH ATTLEBORO NFH	1998-002	CONNECTICUT RIVER ATS RESTORATION - KELT RECONDITIO	Atlantic salmon	0	0	1,466,402
		1998-003	ATLANTIC SALMON RESTORATION - MERRIMACK RIVER BASIN	Atlantic salmon	0	0	437,184
		1998-004	PLEASANT RIVER RECOVERY - BROODSTOCK PRODUCTION	Atlantic salmon	0	0	0
5	RICHARD CRONIN NSS	1998-001	CONNECTICUT RIVER ATS RESTORATION	Atlantic salmon	0	0	596,624

APPENDIX D: BROODSTOCK PROGRAMS AND INTERNAL TRANSFERS

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish	Num Eggs
5	WHITE RIVER NFH	1998-004	CONNECTICUT RIVER ATS RESTORATION - EGG TRANSFERS	Atlantic salmon	0	0	1,590,000
		1998-006	TRANSFER TO NON-SERVICE FACILITY - ROGER REED SFH	Atlantic salmon	0	0	497,000
		1998-007	TRANSFER TO NON-SERVICE FACILITY - ROXBURY SFH, VT	Atlantic salmon	0	0	350,000
		1998-008	TRANSFER TO NON-SERVICE FACILITY - WARREN SFH, NH	Atlantic salmon	0	0	538,092
		1998-009	TRANSFER TO NON-SERVICE FACILITY - HOGSBACK SFH, CT	Atlantic salmon	0	0	201,211
		1998-010	TRANSFER TO NON-SERVICE FACILITY - USGS CONTE LABOR	Atlantic salmon	13,961	34	0
		1998-011	TRANSFER TO NON-SERVICE FACILITY - USGS CONTE LABOR	Atlantic salmon	0	0	29,950
		1998-012	TRANSFER TO NON-SERVICE FACILITY - SFH, VT	Atlantic salmon	300	1,980	0
		1998-013	TRANSFER TO NON-SERVICE FACILITY - SFH, MA	Atlantic salmon	531	548	0
		1998-014	TRANSFER TO NFH SYSTEM FACILITY - CRONIN SALMON STA	Atlantic salmon	30	173	0
5	WHITE SULFUR SPRINGS	1998-001	TRANSFER TO NFH SYSTEM FACILITY - BROODSTOCK PROGR	Rainbow trout	0	0	2,009,000
		1998-002	TRANSFER TO NFH SYSTEM FACILITY - BROODSTOCK PROGR	Rainbow trout	0	0	1,489,000
		1998-003	TRANSFER TO NON-SERVICE FACILITY - BROODSTOCK PROG	Rainbow trout	0	0	2,517,000
		1998-004	TRANSFER TO NON-SERVICE FACILITY - SFH (GA,SC.NC)	Rainbow trout	0	0	1,881,000
6	ENNIS NFH	1998-001	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	2,232,943
		1998-002	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	732,227
		1998-003	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	1,035,466
		1998-004	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	3,131,016
		1998-005	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	3,732,166
		1998-006	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,553,097
		1998-007	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	58,371
		1998-008	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,393,235
		1998-009	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	0	0	514,297
		1998-010	TRANSFER TO NON-SERVICE FACILITY	Rainbow trout	0	0	1,832,651
6	GARRISON DAM NFH	1997-060	TRANSFER TO NFH SYSTEM FACILITY	Walleye	1,800,000	12	0
		1997-079	TRANSFER TO NFH SYSTEM FACILITY	Northern Pike	0	0	3,336,000

APPENDIX D: BROODSTOCK PROGRAMS AND INTERNAL TRANSFERS

Region	FacilityName	PropIdNum	Propagation	Species	Num Fish	Wt Fish	Num Eggs
		1997-080	TRANSFER TO NFH SYSTEM FACILITY	Paddlefish	0	0	200,000
6	GAVINS POINT NFH	1998-004	TRANSFER TO NFH SYSTEM FACILITY	Bluegill	50,150	59	0
		1998-024	TRANSFER TO NFH SYSTEM FACILITY	Pallid Sturgeon	1	1	0
		1998-027	TRANSFER TO NFH SYSTEM FACILITY	Pallid X Shovelnose	2	1	0
		1998-040	TRANSFER TO NFH SYSTEM FACILITY	Walleye	800,000	6	0
		1998-041	TRANSFER TO NFH SYSTEM FACILITY	Walleye	250,000	2	0
		1998-052	TRANSFER TO NFH SYSTEM FACILITY	Paddlefish	0	0	150,000
		1998-053	TRANSFER TO NFH SYSTEM FACILITY	Paddlefish	0	0	50,000
		1998-054	TRANSFER TO NFH SYSTEM FACILITY	Paddlefish	0	0	150,000
		1998-056	TRANSFER TO NFH SYSTEM FACILITY	Pallid Sturgeon	0	0	25,000
6	JACKSON NFH	1998-015	FLAT CREEK - TOWN SECTION (EXCESS AND RETIRED BROOD	Cutthroat trout	490	1,225	0
		1998-016	FLAT CREEK - SOUTH PARK (EXCESS AND RETIRED BROODST	Cutthroat trout	470	1,175	0
6	JONES HOLE NFH	1998-047	TRANSFER TO NFH SYSTEM FACILITY	Cutthroat trout	207,638	4,879	0
		1998-048	TRANSFER TO NFH SYSTEM FACILITY	Rainbow trout	2,500	845	0
6	OURAY NFH	1998-001	TRANSFER TO NFH SYSTEM FACILITY	Razorback sucker	14	57	0
6	SARATOGA NFH	1998-001	TRANSFER TO NFH SYSTEM FACILITY	Lake trout	0	0	1,591,742
		1998-002	TRANSFER TO NON-SERVICE FACILITY - GRACE SFH (ID)	Lake trout	0	0	40,288
		1998-003	TRANSFER TO NFH SYSTEM FACILITY	Brown trout	0	0	1,488,308
		1998-004	TRANSFER TO NON-SERVICE FACILITY	Brown trout	0	0	1,324,987
		1998-005	LAKE MICHIGAN TECHNICAL COMMITTEE	Lake trout	0	0	4,506,069
6	VALLEY CITY NFH	1997-013	TRANSFER TO NFH SYSTEM FACILITY	Tiger Muskellunge	14,000	9	0

END

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